

Application No. 10/689,569

REMARKS

Claims 1-20 are pending. By this Amendment, claims 8 and 12 are amended.

The Office Action noted that the specification page 1, ¶ 1 cited priority to a provisional application 60/419,676 whereas the oath/declaration cited priority to a provisional application 50/419,676. As allowed under MPEP 601.05(c) and (d), a supplemental application data sheet is submitted with this response to correct the oath/declaration to include the correct provisional application number 60/419,676.

Claim Objections

Claim 8 was objected to because line 3 "the ear canal" lacked antecedence. Claim 8 is currently amended to correct this informality. No narrowing amendment is intended.

Claim 12 was objected to because line 3 and lines 11 and 12 "the hearing aid under test" lacked antecedence. Claim 12 is currently amended to correct this informality. No narrowing amendment is intended.

Claims 6, 7, 10, 11, 13 and 15 - 20, were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In response to the rejection of independent claims 1 and 12, the Applicant has below requested the withdrawal of these claim rejections. Since Claims 6, 7, 10 and 11 depend on Claim 1, and Claims 13 and 15-20 depend on Claim 12, and the Applicant has below requested the withdrawal of these claim rejections, the objection to Claims 6, 7, 10, 11, 13 and 15 - 20 should also be withdrawn.

Claim Rejections-35 U.S.C. §102

In the Office Action claims 1, 2, 9 and 12 were rejected under 35 U.S.C. §102(b) as being anticipated by Chung, D; Doh, W; Youn, D; Choi, J; Woo, H; Kim, D; Kim, W; "Hearing

Application No. 10/689,569

Impairment Simulation for the Performance Evaluation of Hearing Aid System"; 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society; Volume 1; 31 Oct – 3 Nov 1996; pp 415-16 (hereinafter referred to as Chung).

With respect to Claim 1, the Office Action asserts that all of the features of Claim 1 are taught in Chung, and suggests the location of each feature in Chung. More specifically, the Office Action asserts that Chung teaches: "Hearing aid analysis circuitry to receive a plurality of signals representing signals generated by speech sounds routed through different acoustic paths and filter circuitry to selectively simulate a hearing loss (e.g.; ¶ 2, lines 9-34; figure 1)." Applicant respectfully disagrees that Chung teaches these elements found in Claim 1 of the present invention.

First, Chung ¶ 2 teaches a simulation system whose purpose "is to provide [a] normal listener with a way to experience the 'feeling' of [an] impaired listener." Chung then continues to describe a simulation system that processes "normal" speech sounds into the speech sounds that an impaired listener would hear. Fig. 1 and paragraph 2, lines 9-34, then describe the process steps of A/D conversion, filtering, interpolating, and so on, to generate an "output speech" (Chung ¶ 2, line 33), that represents what a hearing impaired person would hear. Therefore Chung may teach "a plurality of signals representing signals generated by speech sounds routed through different acoustic paths and filter circuitry to selectively simulate a hearing loss." However, Chung does not teach "hearing aid analysis circuitry", nor does Chung teach "hearing aid analysis circuitry to receive a plurality of signals representing signals generated by speech sounds routed through different acoustic paths and filter circuitry to selectively simulate a hearing loss." The only circuitry taught by Chung is the presumed circuitry associated with the process steps described in ¶ 2, lines 9 – 34, and of Fig. 1. This circuitry is part of a simulation system that is limited to receiving normal speech sounds and outputting speech sounds that simulate the speech sounds that a hearing impaired person hears. Even if this simulation circuitry

Application No. 10/689,569

could be considered "hearing aid analysis circuitry" despite its lack of electrical coupling to a hearing aid, Chung does not teach that this simulation circuitry *receives* signals "that simulate a hearing loss." As just described, Chung teaches circuitry that receives normal speech, and *outputs* signals that simulate a hearing loss (Chung ¶ 2, lines 1-8, 32-34, Fig. 1).

Next, still with respect to Claim 1, the Office Action asserts that Chung teaches "a hearing aid under test *operably interfaced with* a source of prerecorded speech sounds and *hearing aid analysis circuitry* to claim 1 (e.g.; ¶3, lines 1-27)." Chung, ¶3, lines 1-27, discloses two experiments for verifying the performance of the disclosed "Hearing Impairment Simulator" or HIS (Chung, ¶3, lines 1-3). The first experiment tested well-known auditory parameters such as "absolute hearing threshold level, most comfortable level, uncomfortable level" of a "real hearing impaired person." (Chung, ¶ 3, lines 6-9). In the second experiment, normal speech signals were then processed through the simulation system to create a second processed signal, the "output" of Fig. 1. Next, the auditory parameters of a 4 normal hearing persons were tested, but instead of using normal speech signals, the output of the simulation system, which represents what a hearing impaired person would hear, was used instead (Chung ¶ 3, lines 20-25, 30-37). Three different hearing aid algorithms were tested on the 4 subjects fitted with hearing aids to determine which fitting, or algorithm worked best (Chung ¶ 3, lines 17 - 20, 49-50, Table 2).

Although Chung *may* teach a hearing aid "operably interfaced with a source of prerecorded speech sounds", at no point does Chung teach a hearing aid "operably interfaced...with hearing aid analysis circuitry." The hearing aids in Chung were fitted to human test subjects, and the improvements in the test subject's auditory parameters, namely Absolute HTL, SRT, and SDT were tested. These tests are well-known to those skilled in the art, and are based upon the response of a human subject to prerecorded sounds. These tests do not include interfacing the hearing aid with hearing aid analysis circuitry. Therefore, Chung does not teach "a hearing aid operably interfaced...with hearing aid analysis circuitry."

Application No. 10/689,569

Still with respect to Claim 1, the Office Action asserts that Chung also teaches "A computer system operably connected to hearing aid analysis circuitry and a source of prerecorded speech sounds in regard to claim 1 (e.g.; ¶ 3, lines 33-37)." Chung teaches using a computer earphone as an "output transducer" to deliver sound to a male or female person (Chung ¶ 3, lines 28-29, 33-37), but does not teach a computer system "operably connected to hearing aid analysis circuitry".

Again with respect to Claim 1, the Office Action asserts that Chung teaches "A control program that operates to present prerecorded speech sounds to hearing aid analysis circuitry to produce a first degraded signal routed through filter circuitry and a second processed signal routed through the hearing aid and the filter circuitry in regard to claim 1 (e.g.; ¶3, lines 6-27)." Chung discloses the use of "three well-known hearing aid algorithms" that are well-known to those skilled in the art (Chung ¶ 3, lines 17-20). Those skilled-in-the-art of hearing aid fittings will recognize that these standard algorithms are programmed into the hearing aid, and used to process, often through filtering schemes, speech sounds received by the hearing aid. These algorithms, even if construed as control programs, do not operate to present speech sounds to hearing aid analysis circuitry, rather they are an integral part of the hearing aid circuitry. Furthermore, Chung does not teach "a control program that operates to present prerecorded speech sounds to hearing aid analysis circuitry to produce *a first degraded signal routed through filter circuitry* and a *second processed signal routed through the hearing aid and the filter circuitry*. Even if the algorithms are construed as control programs, and the hearing aid circuitry is construed as hearing aid *analysis* circuitry, only one signal is processed, not two.

Finally, regarding Claim 1, the Office Action asserts that Chung teaches "A speech recognition program that compares speech recognition from a first degraded signal and speech recognition from a second processed signal to determine an objective indication of speech perception enhancement for a hearing aid under test in regard to claim 1 (e.g.; ¶3, lines 6-27)."

Application No. 10/689,569

Although Chung discloses the use of speech reception testing (e.g. SRT), Chung does not teach the use of speech recognition programs.

Therefore, since Chung does not disclose all of the features claimed by the Applicant in Claim 1, Chung does not anticipate independent Claim 1, and subsequently does not anticipate dependent Claims 2 and 9, of the present invention. The Applicant respectfully requests that these rejections be withdrawn.

With respect to Claim 12, the Office Action asserts that Chung teaches "Comparing speech recognition from a first degraded signal and speech recognition from a second processed signal using a speech recognition program in regard to claim 12 (e.g.; ¶ 3, lines 6-27)." However, Chung does not teach the use of a speech recognition program, nor does it specifically teach "comparing speech recognition from a first degraded signal and speech recognition from a second processed signal using a speech recognition program." As discussed previously, Chung ¶ 3, lines 6-27 discloses the use of standard auditory tests such as speech discrimination testing (SDT) and speech recognition testing (SRT) (Chung ¶ 3, lines 14-17). However, it is well-known in the art that these tests do not utilize computer implemented speech recognition programs. As such, Chung does not teach this feature of the claimed invention.

The Office Action further asserts, with respect to Claim 12, that Chung teaches "...determining an objective indication of speech perception enhancement for a hearing aid under test in regard to claim 12 (e.g.' ¶ 3, lines 6-27)." The indication of speech perception enhancement described by Chung is subjective in nature in that it relies upon the responses of a human test subject (Chung Abstract, lines 9-12; Chung ¶ 2, lines 1-4; Chung ¶ 3, lines 28-30). Since Chung does not teach an "objective indication of speech perception enhancement," the Applicant respectfully requests that the rejection of Claim 12 be withdrawn.

Application No. 10/689,569

Claim Rejections-35 U.S.C. §103

In the Office Action, dependent claims 3 and 4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Chung in view of Lindeman et al. (US 6,118,877) (Hereafter referred to as Lindemann). Dependent claims 5 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Chung in view of Revit et al. (US 2001/0040969) (Hereafter referred to as Revit).

In terms of dependent claims 3, 4, and 5, these rejections are respectfully traversed for the reasons set forth above with respect to independent claim 1.

In terms of dependent claim 14, this rejection is also respectfully traversed for the reasons set forth above with respect to independent claim 12.

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



Brad Pedersen
Registration No. 32,432

Customer No. 24113
Patterson, Thuent, Skaar & Christensen, P.A.
4800 IDS Center
80 South 8th Street
Minneapolis, Minnesota 55402-2100
Telephone: (612) 349-5774